

**SOUTH DAVIS SEWER DISTRICT**

**ADDENDUM NO. 2**

**NORTH PLANT UPGRADE PROJECT**

**April 29, 2024**

This addendum changes and adds to contract documents as noted below. The bidder shall acknowledge this addendum on the bid form, certifying that the addendum was received in its entirety and that the Bidder accepts the conditions herein.

The contract documents are hereby revised as follows:

- 1.1 The Bid opening date has been moved to May 30, 2024 at 2:00pm.
- 1.2 The question period is extended to May 24, 2024 at 4:00 pm.
- 1.3 The contact information for the prequalified general contractors has been provided below.

Contact	Phone	Email
Eric Alder	801-266-8856	<a href="mailto:ealder@alderconstruction.com">ealder@alderconstruction.com</a>
Buck Sellers	801-557-7482	<a href="mailto:bsellers@bodellconstruction.com">bsellers@bodellconstruction.com</a>
Justin Broshear	801-298-9556	<a href="mailto:jsbroshear@copconstruction.com">jsbroshear@copconstruction.com</a>
Mark Nielsen	801-407-2000	<a href="mailto:mn@1gerber.com">mn@1gerber.com</a>
Nathan Callaway	801-553-1661	<a href="mailto:nate@wadsco.com">nate@wadsco.com</a>
Zeke Johnson	208-887-1401	<a href="mailto:zeke@rscigroup.com">zeke@rscigroup.com</a>

- 1.4 Specification **237200 – AIR-TO-AIR ENERGY RECOVERY EQUIPMENT** Section 2.1.A has been updated to include Inovent as an approved Manufacturer.

PART 2 - PRODUCTS	
2.1	PACKAGED ENERGY RECOVERY UNITS
A.	Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1.	Valent or equal by
2.	Greenheck Fan Corporation.
3.	Loren Cook Company.
4.	RenewAire LLC.
5.	Swegon
6.	Venmar CES Inc.
7.	<b>Inovent.</b>
8.	Prior approved equal

- 1.5 Specification 237413 – **PACKAGED OUTDOOR, CENTRAL-STATION AIR HANDLING UNITS** Section 2.1.A has been updated to include Tempmaster as an approved Manufacturer.

PART 2 - PRODUCTS	
2.1	MANUFACTURERS
A.	Manufacturers: Subject to compliance with requirements, provide products by one of the following:
	1. AAON, Inc.
	2. Carrier.
	3. Daikin
	4. Trane.
	5. York.
	6. Tempmaster.
	7. Prior approved equal.

- 1.6** Each MBBR tank should have the capacity to independently treat and pass a flow rate of 18 MGD if the other tank is offline. The MBBR screens in each tank should be designed around 18 MGD flow rate.
- 1.7** The results from the 14-day performance test specified in Specification **463350 – MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT** Section 1.10, A, 2 shall be an average over the 14 days.
- 1.8** The definition for *Beneficial Use* in Specification **463350 – MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT** Section 1.12, A, is after the 14-day performance test, and after the Owner has received all necessary training, equipment and commenced operation.
- 1.9** Various changes to Specification **463350 – MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT** have been made. These changes address conflicts regarding the maximum fill percentage, butterfly valve actuators and disc material, and what the Design Condition and Maintenance Condition parameters are. The updated Specification is attached to this Addendum.
- 1.10** Open air sandblasting on the clarifiers, gravity thickener, and digester lid is acceptable.
- 1.11** The coating requirements for Digester #3 lid have been specified in Addendum #1 drawing G020. The drawing indicates that the exterior of the Digester Lid shall be coated per Specification 072541 provided in Addendum #1. The interior of the Digester Lid shall be coated per Specification 098000 System 106B provided in Addendum #1.
- 1.12** Please note that the Coating Schedules are shown on drawings G019 and G020. This schedule identifies what coating system to use on the different structures for the project.

- 1.13** The bridge and platforms on the existing clarifiers and gravity thickener should also be coated. The walkways are removable grating.
- 1.14** The existing digester covers are not going to be recoated or receive any new insulation. Specification **072541 – DIGESTER COVER INSULATION ROOF SYSTEM** Section 1.1.B has been updated as shown below.

PART 1 - GENERAL	
1.1	SUMMARY
A.	CONTRACTOR shall furnish labor, materials, <u>equipment</u> and incidentals required to provide the insulated roofing system as shown and specified for all digesters.
B.	The extent of the roofing system includes insulation and roofing on the Gas-Holding Covers for Digester No. 3.

- 1.15** The building permit will be from West Bountiful and the District will pay the fee directly.
- 1.16** Please note that the pump room in the headworks building shares the same ceiling as the electrical room. There is no intermediate floor/ceiling between the electrical room and pump room in the headworks building. The Finish Schedule on sheet 81A802 calls out for aluminum soffit for the ceiling in the Electrical/Pump Room correctly.
- 1.17** The contractor may discharge any water from site dewatering to the headworks or any nearby catch basin. Note that site catch basin drain back to the existing headworks. The contractor will coordinate any dewatering efforts with plant staff.
- 1.18** The coating schedule G019 indicates that the walls and floor of the wet well should be coated. This is incorrect, only the walls and ceiling should be coated. The coating schedule G019 has been corrected to reflect this. The revised document has been attached to this Addendum.
- 1.19** No coating is required on any existing/modified manholes. Coating schedule G019 has been updated to reflect this.
- 1.20** Tempered water will not be provided to site eyewashes or showers. Water heaters and associated equipment will not be installed.
- 1.21** On sheet 33P401, rotameter ME-33105 was mislabeled. It has been relabeled as M-33015. The updated sheet has been included with this addendum.
- 1.22** Question: Solenoid valve SV-33103 shown on sheet 33P401 is not on the Valve Schedule. Answer: Solenoid valve SV-33103 is on valve schedule, see Sheet 81M807.

- 1.23** On drawings 69M206 and 69M405, butterfly valves HV-70530D and HV-7040D were mislabeled. They have been relabeled as HV-70530C and HV-7040C, respectively. The updated drawings (69M206 and 69M405) have been attached to this addendum.
- 1.24** On drawing 69M206, the meters shown as M-70531 and M-70541 have been removed from the drawing.
- 1.25** Suction diffusers ME-70521 and ME-70526 are shown on mechanical drawing 69M206 and 69M405. These diffusers have been added to the mechanical schedule on sheet 81M803 and P&ID sheet I125.
- 1.26** On drawing 69M409, valve HV-7501 was mislabeled. It has been relabeled as HV-70501. The updated drawing has been attached to this addendum.
- 1.27** Fittings 40 and 48 shown on the pipe schedule were mislabeled on drawing 69M801 as “SCH 40 SS” and have been updated to read “SCH 40 WS.” The hot water piping shall all be welded steel, and the biogas piping shall be stainless steel. The pipe schedule on 69M801 has been updated to reflect this and is included in this addendum. No dissimilar metals should be connected in the digester building.
- 1.28** On drawings 06M201, 06M401, and 06M402 the diesel tank was mislabeled as ME-06011. The tag number have been updated to ME-06021C. The updated sheets are included in this addendum.
- 1.29** Contractor shall coordinate final fuel piping layout between diesel tank and generator upon approval of final submittals for those equipment. General Note 5 has been added on sheets 06M201, 06M401, and 06M402 to reflect this. Additionally, some incorrect keynote labels have been updated. The updated sheets are included in this addendum.



SUPPLIER in compliance with Division 16.

- L. Supply and install all electrical power, control wiring and conduit to the Biological Treatment System equipment, including wire, telephone lines, cable trays, cable, junction boxes, fittings, disconnects, conduit, etc. in compliance with Division 16.
- M. The CONTRACTOR shall coordinate the installation and timing of all interface points such as piping and electrical tie-ins with the SYSTEM SUPPLIER.
- N. Supply and installation of any embedded pipe sections or wall inserts, if applicable, for any penetrations including but not limited to those for drop pipes and instruments.
- O. Supply of all manual valves on aeration system drop pipes upstream of the MBBR SYSTEM SUPPLIER / CONTRACTOR interface, unless explicitly provided by the MBBR SYSTEM SUPPLIER.
- P. Coordination and timing of all interface points such as piping and electrical tie-ins with the MBBR SYSTEM SUPPLIER.
- Q. Video recording of any training activities.
- R. Supply and construction of MBBR reactors whose interior surfaces are free of all form marks, with all voids filled.
- S. Concrete Tank Finish adhere to requirements of ACI 301 (2011) for form facing materials and as-cast finishes.

### 1.3 SYSTEM SUPPLIER SCOPE OF WORK

- A. The SYSTEM SUPPLIER shall furnish the process design, equipment, and process performance guarantee for a Biological Treatment System, as shown on the Contract Drawings and specified herein. In addition to the equipment shown below, technology licenses and patent infringement indemnification shall be included in the SYSTEM SUPPLIER's scope. A single SYSTEM SUPPLIER shall supply the process equipment for Biological Treatment System in order to establish system performance responsibility.
- B. Mechanical process equipment to be furnished under this section includes the following:
  - 1. Plastic media
  - 2. Cylindrical Screen assemblies with air sparge
  - 3. Flat Screen assemblies
  - 4. Coarse bubble aeration grids
  - 5. Modulating airflow control valves
- C. Supplier shall list any exceptions to this specification and a written justification of all deviations of this specification.

#### 1.4 QUALIFICATIONS

- A. The SYSTEM SUPPLIER of the Biological Treatment System shall be:
1. SUEZ Water Technologies
  2. World Water Works
  3. Or approved equal.

#### 1.5 SUBMITTALS

- A. Submittals shall include the following:
1. Equipment drawings showing all important details of construction and dimensions.
  2. Descriptive literature, bulletins, and/or catalogs of the equipment.
  3. Data on the characteristics, features, and performance of the equipment.
  4. The total weight of the equipment including the weight of the single largest item
  5. Motor drive data.
  6. Supplier to provide a comprehensive submittal that includes control narrative and P&ID.
- B. The SYSTEM SUPPLIER shall furnish operation and maintenance manuals. The manuals shall be prepared specifically for this installation and shall include all required catalog cuts, drawings, equipment lists, descriptions, and other information that is required to instruct operation and maintenance personnel unfamiliar with such equipment.
- C. The CONTRACTOR shall furnish shop drawings, catalog data, operation and maintenance manuals, installation instructions, parts list, layout drawings, equipment design data, testing data and reports to show full compliance with these specifications.

#### 1.6 QUALITY ASSURANCE

- A. The installations shall conform to all applicable codes that are typical and reasonable for the type of installation.
- B. Requirements of the following organizations shall be considered minimum:
1. OSHA - Occupational Safety and Health Act
  2. ANSI - American National Standards Institute

3. ASTM - American Society for Testing and Materials
4. AISI - American Iron and Steel Institute
5. AIWC - American Institute of Steel Construction
6. AWS - American Welding Society
7. AGMA -American Gear Manufacturers Association
8. NEMA- National Electrical Manufacturers Association
9. NEC -National Electric Code.

## 1.7 PATENTS

- A. The SYSTEM SUPPLIER shall assume all costs of patent fees or licenses for equipment or processes it supplies under this agreement, and shall safeguard and save harmless the GENERAL CONTRACTOR, OWNER and ENGINEER and their agents from damages, judgments, claims and expenses arising from license fees or claimed infringements or any letters of patent or patent right, or because of royalty or fee for the use of any equipment or process; and the price stipulated for all such patent fees, licenses, or other costs pertaining thereto.

1.8 DESCRIPTION OF OVERALL SYSTEM

- A. The Biological Treatment System shall allow the media to move about freely within a reactor using the supplier’s standard aeration system for aerobic reactors. Screen assemblies shall be used to retain the carrier elements within the MBBR system. Wastewater (Influent) is fed to MBBR on a continuous basis.
- B. The MBBR shall be capable of operating in a Maintenance Condition scenario. Maintenance Condition allows for one train to be taken offline, with all media transferred from that train to the other.
- C. The Biological Treatment System shall be designed for operation in a reactor as indicated on the drawings. Equipment shall be designed for the following:

Parameter	Units	Value
Number of Process Trains	-	2
Number Reactors Per Train	-	1
Reactor Dimensions	ft	56’ x 56’ x 20’ SWD
Reactor Volume	ft <sup>3</sup>	62,720
Minimum Freeboard	ft	2’
Max Reactor Media Fill Carrier Elements	%	25 (Design Condition) 50 (Maintenance Condition)
Min total protected surface Area	m <sup>2</sup>	444
Aeration System Type	-	Coarse Bubble
Residual D.O., Design	mg/L	2-4

- D. The SYSTEM SUPPLIER shall provide the following design parameters:

Parameter	Units	Value
Specific Media Surface Area		
Total Surface Area:	m <sup>2</sup> /m <sup>3</sup>	955
Protected Surface Area:	m <sup>2</sup> /m <sup>3</sup>	806
Max Bulk Volume of Media (Maintenance Condition)	m <sup>3</sup> (ea)	888
Min Bulk Volume of Media (Design Condition)	m <sup>3</sup> (ea)	444
Max Air Requirements, (Design Condition)	SCFM/PSI	2,800 / 12 PSI
Max Air Requirements, (Maintenance Condition)		5,500 / 12 PSI
Min Air Requirements, (Design Condition)	SCFM/PSI	2,500 / 12 PSI
Min Air Requirements, (Maintenance Condition)		3,200 / 12 PSI

1.9 PROCESS GUARANTEE

A. Basis of Design:

1. OWNER/CONTRACTOR hereby agrees to the Basis of Design as defined herein, confirms its accuracy and completeness, and agrees that it shall serve as the basis for the Process Performance Guarantee.

2. Basis of Design:

<b>BIOLOGICAL TREATMENT SYSTEM DESIGN FLOW CONDITIONS</b>	
<b>Design Flow, MGD</b>	<b>9.0</b>
<b>Peak Hour Flow, MGD</b>	<b>18.0</b>
<b>BIOLOGICAL TREATMENT SYSTEM DESIGN POLLUTANT LOAD CONDITIONS</b>	
<b>BOD<sub>5</sub></b>	
<b>Design, mg/L (lb/day)</b>	<b>14.6 (1,100)</b>
<b>TSS</b>	
<b>Design, mg/L (lb/day)</b>	<b>32 (2,400)</b>
<b>NH<sub>3</sub>-N</b>	
<b>Design, mg/L (lb/day)</b>	<b>17.3 (1,300)</b>
<b>TKN</b>	
<b>Design, mg/L (lb/day)</b>	<b>21.6 (1,625)</b>
<b>Site Elevation</b>	
<b>Feet</b>	<b>4,220</b>
<b>Wastewater Temperature</b>	
<b>Minimum, C</b>	<b>12</b>
<b>Minimum Month, C</b>	<b>12</b>
<b>Maximum Month, C</b>	<b>30</b>

\* See table below for temperature history in degrees Celsius

MONTH	2017			2018			2019			2020		
	Min	Avg.	Max	Min	Avg.	Max	Min	Avg	Max	Min	Avg	Max
Jan	14	16	18	16	18	19	15	17	18	15	17	19
Feb	14	16	19	16	17	19	15	16	18	15	17	18
March	15	17	20	16	17	19	14	16	17	17	19	21
April	17	19	21	17	19	21	16	18	19	18	20	21
May	19	21	25	19	21	22	17	20	21	14	21	26
June	19	24	26	22	23	24	21	22	24			
July	25	26	27	24	26	27	24	26	36			
Aug	26	27	27	26	26	27	24	25	29			
Sept	20	25	28	20	25	27	16	21	24			
Oct	18	22	24	22	24	25	9	13	18			
Nov	16	19	22	19	21	23	10	13	22			
Dec	14	17	20	16	19	20	5	11	19			
Average	14	21	28	19	21	23	15	18	22	16	19	21





the SYSTEM SUPPLIER's last major equipment item, as provided on the Project Schedule. Should System Stability not be achieved and the Performance Test not be conducted within such time period, then SYSTEM SUPPLIER's total liability with regard to the Process Guarantee shall be discharged and the Certificate of Performance Test Acceptance will be executed by the Parties.

## B. Responsibilities During the Performance Test

### 1. OWNER/CONTRACTOR

- System Operations
  - i. OWNER/CONTRACTOR shall be responsible for providing the Influent conditions as specified in Basis of Design.
  - ii. OWNER/CONTRACTOR shall be responsible for furnishing all trained personnel, Influent, materials, utilities, services, chemicals, and all incidentals required for the operation of the complete facility, including SYSTEM SUPPLIER's System.
  - iii. Owner/ Contractor shall be responsible for operating SYSTEM SUPPLIER's System in accordance with SYSTEM SUPPLIER's O&M instructions, manuals and instructions, or SYSTEM SUPPLIER's reasonable revisions of the same.
  - iv. If required by SYSTEM SUPPLIER, OWNER/CONTRACTOR shall restore the System to the specified operating conditions before testing begins.
  - v. Should the OWNER/CONTRACTOR operate the System outside of the specified operating conditions, the Process Guarantee shall be deemed to have been met, and SYSTEM SUPPLIER shall have no further obligation or liability hereunder.
  - vi. Should the Owner/Operator already have operated the System outside of the specified operating conditions, and such operation damaged System equipment, the Process Guarantee shall be deemed to have been met, and SYSTEM SUPPLIER shall have no further obligation or liability hereunder.
- Sampling and Analysis
  - i. OWNER/CONTRACTOR shall be responsible and bear all costs for collecting all samples, carrying out all laboratory analysis or other tests, and furnishing all necessary labor, laboratory equipment, and supplies.
- Record Keeping and Copies of Records







time shall be allowed to replace or repair the damaged equipment in accordance with the Contract provisions, and associated costs shall be borne by the Purchaser.

3. Should the Parties disagree on whether the Basis of Design (Influent) is compliant, SYSTEM SUPPLIER may take additional Influent [and Effluent] samples and conduct independent laboratory testing and the Performance Test shall be extended and the Contract adjusted accordingly until the results of such laboratory test are available. If the laboratory test results confirm that the Influent is out of compliance, OWNER/CONTRACTOR shall reimburse SYSTEM SUPPLIER for the costs and expenses associated with the sampling and laboratory testing and costs related to the extension of the Contract.
  4. Notwithstanding the efforts provided in Section 1.10(F)(2) above, should compliant Influent or other Basis of Design conditions not be attainable within 12 months of delivery of the SYSTEM SUPPLIER's last major equipment item, as provided on the Project Schedule, the requirement to meet the Process Guarantee shall be deemed to have been met, and SYSTEM SUPPLIER shall have no further obligation or liability hereunder. The OWNER/CONTRACTOR shall promptly execute the Certificate of Acceptance, with the last day of the originally scheduled Performance Test being the effective date.
  5. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SYSTEM SUPPLIER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SYSTEM SUPPLIER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE EQUIPMENT SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE EQUIPMENT. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.
  6. THERE ARE NO GUARANTEES ESTABLISHED, EXPRESS, IMPLIED OR STATUTORY, EXCEPT THOSE SET FORTH HEREIN.
- E. Mechanisms that Discharge the Process Guarantee. Upon any of the following, SYSTEM SUPPLIER's total liability for the Process Guarantee shall be discharged:
1. Successful completion of a Performance Test, as demonstrated by the Performance Test results.
  2. OWNER/CONTRACTOR's operation of the System at any time (prior to or during the Performance Test) outside of the operating conditions as specified herein in a manner that does damage to the System's equipment.
  3. OWNER/CONTRACTOR's operation of the System during the Performance Test outside of the operating conditions as specified herein.
  4. Conditions meeting the Basis of Design are not available 12 months of delivery of the SYSTEM SUPPLIER's last major equipment item, as provided on the Project Schedule, or the OWNER/CONTRACTOR is otherwise unable to complete the Performance Test within such time period.





SOUTH DAVIS SEWER DISTRICT  
NORTH PLANT UPGRADE

MOVING BED BIOFILM REACTOR (MBBR) EQUIPMENT  
463350-16

## 1.12 BOND

- A. The SYSTEM SUPPLIER shall provide a process performance bond as an alternative add-on to the base bid to the OWNER. The SYSTEM SUPPLIER shall list the cost for the Bond separately from the equipment purchase price. Bonds will be purchased at the owner's discretion. Bonds shall be valid for a period of one (1) year from beneficial use. The bond shall be for an amount of one hundred (100) percent of the SYSTEM SUPPLIER'S contract value. A letter from the SYTEM SUPPLIER'S surety company shall be provided with the bid at bid time.

## 1.13 EQUIPMENT WARRANTY

- A. SYSTEM SUPPLIER shall warrant to the OWNER that the Equipment shall materially conform to the description in SYSTEM SUPPLIER's Documentation and shall be free from defects in material and workmanship. The warranty shall not apply to any Equipment that is specified or otherwise demanded by OWNER and is not manufactured or selected by SYSTEM SUPPLIER, as to which (i) SYSTEM SUPPLIER hereby assigns to OWNER, to the extent assignable, any warranties made to SYSTEM SUPPLIER and (ii) SYSTEM SUPPLIER shall have no other liability to OWNER under warranty, tort or any other legal theory. If OWNER gives SYSTEM SUPPLIER prompt written notice of breach of this warranty within 18 months from delivery or 1 year from acceptance, whichever occurs first (the "Warranty Period"), SYSTEM SUPPLIER shall, at its sole option and as OWNERS's sole remedy, repair or replace the subject parts or refund the purchase price therefore. If SYSTEM SUPPLIER determines that any claimed breach is not, in fact, covered by this warranty, the OWNER shall pay SYSTEM SUPPLIER its then customary charges for any repair or replacement made by SYSTEM SUPPLIER. SYSTEM SUPPLIER's warranty is conditioned on OWNER's (a) operating and maintaining the Equipment in accordance with SYSTEM SUPPLIER's instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to SYSTEM SUPPLIER. SYSTEM SUPPLIER's warranty does not cover damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by SYSTEM SUPPLIER). THE WARRANTIES SET FORTH IN THIS SECTION ARE SYSTEM SUPPLIER'S SOLE AND EXCLUSIVE WARRANTIES. SYSTEM SUPPLIER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

## 1.14 SYSTEM CONTROLS

1. Programing and system integration shall be supplied by owner's system integrator.
2. Supplier to provide complete instrumentation and controls strategy for the process system.



A. General:

1. The CONTRACTOR shall furnish and install aeration grid(s) in the basin(s) as shown and specified. The Equipment Manufacturer shall furnish the items listed below:

- Drop Pipe(s)
- Aeration Grids
- Supports
- Air Flow Control Valves (manual and modulating)

B. Equipment:

1. Drop Pipe

A 304/304L stainless steel drop pipe(s) shall be provided for the aeration grid(s) to a point approximately 3' above the SWD. The drop pipe shall be schedule 10 pipe and connect to the CONTRACTOR supplied out-of-basin pipe. VENDOR scope ends at the Straub coupling at the top of the drop pipe.

2. Aeration Grids

A 304/304L stainless steel aeration grid(s) shall be provided for the basin(s) as shown on the contract drawings. The aeration grid(s) shall be comprised of; an aeration grid manifold of schedule 10 pipe with Ø1" or Ø1-1/4" laterals of schedule 5 pipe. The laterals shall be uniformly spaced along the length of the aeration grid manifold. Each lateral will have a series of 4mm (5/32") holes uniformly spaced along the bottom. The lateral pipe shall include a crimped drop pipe at the end, to provide for easy drainage, and to prevent entry of media. Each aeration grid shall be supplied with all necessary gaskets and hardware.

3. Supports

Aeration Grid and In-Basin Manifold Supports: Aeration grid and in-basin manifold supports to be fabricated from 304/304L stainless steel. Each support shall consist of a minimum 2" bearing contact between the pipe and support. The support shall be secured by two (2) 18-8 stainless steel threaded rods with a minimum diameter of 5/8". Each rod will be anchored to the concrete by chemical anchors. The aeration grid and in-basin manifolds shall be secured to the support by a u-bolt to prevent lateral movement. Supports shall be designed to allow for on-site height adjustment. Supports shall have a maximum spacing of 9'-0". All interconnecting hardware required to secure the support to the aeration grid shall be provided. No field welding shall be required.

4. Construction

- Welding: All welding shall conform to industry standard welding fabrication

procedures. All factory welding shall undergo pickling/passivation to prevent rust and corrosion.

- Bolting: Where nothing to the contrary is indicated, bolts, screws, nuts, and washers shall be 18-8 stainless steel.
- Installation: The installation of the aeration equipment shall be such that upon completion of installation, all diffusers are level to  $\pm 1/8$ " of a common horizontal plane.
  - i. Checkout: CONTRACTOR to provide an embedded benchmark location in each reactor along with its elevation as a means for comparing air grid elevations from one reactor to the next.

## 5. Design

- The system shall be designed to be submerged within the tank basin without deforming any component.
- All welded parts and assemblies shall be shop fabricated from 304L stainless steel with a 2D finish. Unless otherwise specified, all non-welded parts and pieces shall be shop fabricated from type 304 stainless steel with a 2D finish.
- All flanged joints shall have 45 to 55 durometer, Shore A, neoprene gaskets.
- All aeration grid and in-basin manifold supports shall be designed to compensate for a maximum floor elevation difference of  $\pm 3$ ".
- All supports shall be designed to resist the load of the media in the event the tank is drained.

## 6. Airflow Control Valves (manual and modulating)

- Modulating Butterfly Valves
  - i. SYSTEM SUPPLIER shall provide, and the CONTRACTOR shall install butterfly valves with actuators, one for each MBBR zone as shown on the contract drawings.

Qty:	1
Size:	12"
Valve Type:	Butterfly
Valve Style:	Lug
Operation:	Open/close
Actuator Type:	Electric Actuator
Material:	Cast iron lugged body, Stainless Steel

disc, 316SS stem

Seat: EPDM or Viton

- Manual Butterfly Valves

- ii. SYSTEM SUPPLIER shall provide manual butterfly valves for each drop pipe as shown on the contract drawings.

Qty: As shown in drawings

Size: 12"

Valve Type: Butterfly

Valve Style: Lug

Operation: Open/close

Actuator Type: Lever

Material: Cast iron lugged body, Stainless Steel disc, 316SS stem

Seat: EPDM or Viton

## 2.4 SCREENS

### A. General:

1. The SYSTEM SUPPLIER shall furnish and the CONTRACTOR shall install cylindrical screen(s) for media retention in the basin(s) as shown and specified. The Equipment Manufacturer shall furnish the items listed below:

- Cylindrical Screens
- Flat Screens
- Air Sparge System
- Supports

### B. Equipment:

#### 1. Cylindrical Screen

- Cylindrical Screens shall be constructed of 304/304L stainless steel and shall be provided for the basins as shown on the contract drawings.
- Design and supply of screens and supports shall be provided by the SYSTEM SUPPLIER.
- Cylindrical Screen (Perforated Plate): 304/304L stainless steel cylindrical

screens shall be provided for the basins as shown on the contract drawings. The cylindrical screens shall be constructed of a minimum 14 gauge sheet and have a perforation pattern of 5/8" dia. with 13/16" centers on a staggered spacing. Each screen will have a minimum 1/4" thick plate mounting flange with two sets of anchor holes for wall mounting.

## 2. Sparge Air Scour Piping

- 1-inch diameter 304/304L stainless steel air scour piping will be provided for each cylindrical screen as shown on the contract drawings. The air scour piping shall be tapped from the main air line inclusive of manual isolation valves.
- Sparge piping shall be rated for continuous operation.

## 3. Flat Screen

- A 304/304L stainless flat screen(s) shall be provided for the basin as shown on the contract drawings. The flat screen shall be constructed of a minimum 14 gauge sheet and have a perforation pattern of a 5/8" dia. with 13/16" centers, on a staggered spacing. Each screen will mount directly to the wall.

## 4. Construction

- Welding: All welding shall conform to industry standard welding fabrication Procedures. All factory welding shall undergo pickling/passivation to prevent rust and corrosion.
- Bolting: Where nothing to the contrary is indicated, bolts, screws, nuts, and washers shall be 18-8 stainless steel.
- Installation: Each cylindrical screen shall be mounted directly to the concrete wall with (8) 18-8 stainless steel threaded rods with a minimum diameter of 3/8". Where cylindrical screens have spargers, screens shall be installed so that all air scour piping within the system is level to  $\pm 1/8$ " of a common horizontal plane. Where cylindrical screens do not have spargers, screens shall be installed so that they are level to  $\pm 1/4$ " of a horizontal plane.

## 5. Design

- The system shall be designed to be submerged within the tank basin without deforming any component.
- All welded parts and assemblies shall be shop fabricated from 304L stainless steel with a 2D finish. Unless otherwise specified, all non-welded parts and pieces shall be shop fabricated from type 304 stainless steel with a 2D finish.
- The cylindrical screens shall be designed to handle the combined peak hour flow, RAS flow, and internal recycle flows.
- Screen design loading rate shall not be more than 23 gpm/sf of screen surface area.



electrically where/if required. Instruments and devices shall be configured and demonstrated to function prior to start-up. A document indicating the set points and calibration shall be furnished for documentation records.

- D. The contractor shall furnish all consumables, including oil and grease, prior, to operation of equipment. All consumables after beneficial occupancy will be by the owner.
- E. Operation, maintenance and installation manuals shall be provided for the supplied equipment. A total of five (5) copies shall be furnished.

### 3.4 TRAINING

- A. The SYSTEM SUPPLIER shall provide on-site training to the OWNER's plant personnel.
- B. The training services shall comprise of a qualified representative to instruct and train plant personnel in the proper startup, operation, shutdown, maintenance, repair and troubleshooting of the system. The O&M Manual shall be the primary training tool with supplemental training provided from a presentation. Mechanical equipment suppliers will also provide training on their specific equipment.
- C. A training outline shall be submitted to the ENGINEER for approval including the credentials of the training staff.
- D. The training shall include the following topics:
  - 1. Theory of Operation
  - 2. Actual Operation
  - 3. Mechanical Maintenance
  - 4. Electrical Maintenance
  - 5. Instrumentation
  - 6. Optimum Operation
  - 7. Troubleshooting
  - 8. Hands-on
  - 9. Question and Answer Session

END OF SECTION 463350

4/19/2024 C:\USERS\BRETT.PRAATT\DCACCOCS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\000 GENERAL\G019\_G020 - COATING SCHEDULE.DWG

COATING SCHEDULE		
AREA	ITEM	COATING
<b>GENERAL PIPING</b>		
	NON -SUBMERGED EXTERIOR STEEL PIPING, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 102
	INTERIOR STEEL PIPING, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 103
	SUBMERGED STEEL PIPING, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 104
	SUBMERGED AND NON-SUBMERGED STEEL PIPING, VALVES, FITTINGS, AND APPURTENANCES- MODERATE H2S EXPOSURE	COATING SYSTEM 106
	BURIED STEEL PIPING AND FITTINGS	COATING SYSTEM 107
	BURIED DUCTILE IRON OR CAST IRON PIPE, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 211
	NON -SUBMERGED EXTERIOR DUCTILE IRON OR CAST IRON PIPE, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 212
	INTERIOR DUCTILE IRON OR CAST IRON PIPE, VALVES, FITTINGS, ND APPURTENANCES	COATING SYSTEM 213
	SUBMERGED EXTERIOR DUCTILE IRON OR CAST IRON PIPE, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 213
	EXPOSED EXTERIOR PVC OR CPVC PIPING, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 221
	EXPOSED INTERIOR PVC OR CPVC PIPING, VALVES, FITTINGS, AND APPURTENANCES	COATING SYSTEM 222
	EXPOSED INTERIOR/EXTERIOR GALVANIZED STEEL PIPING	COATING SYSTEM 201
	STAINLESS STEEL PIPE	NOT COATING REQUIRED
	HOBAS PIPE	NOT COATING REQUIRED
	FIBERGLASS REINFORCED PIPING, FITTINGS AND APPURTENANCES	NOT COATING REQUIRED
	PIPE BOLLARDS	COATING SYSTEM 102
	MANHOLES (INTERIOR)	NO COATING REQUIRED
<b>MISC. METALS</b>		
	STRUCTURAL STEEL (NON HDG)	COATING SYSTEM 101
	ALUMINUM PLANK OR GRATING	NOT COATING REQUIRED
	STRUCTURAL ALUMINUM	NO COATING UNLESS EMBEDDED OR IN CONTACT WITH CONCRETE- SYSTEM 203
	ALUMINUM HANDRAIL	FACTORY FINISH - CLEAR ANODIC
	ALUMINUM STAIRS	NO COATING UNLESS EMBEDDED OR IN CONTACT WITH CONCRETE- SYSTEM 203
<b>HEADWORKS</b>		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALL ABOVE GROUND	NO COATING REQUIRED
	INTERIOR CONCRETE CHANNEL WALLS	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	SUBMERGED CONCRETE CHANNEL SLAB AND FLOOR	NO COATING REQUIRED
	WET WELL CONCRETE WALLS AND CEILING	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	INTERIOR CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	INTERIOR CONCRETE CHANNEL SLABS/FLOOR	NO COATING REQUIRED
	STEEL WEB TRUSSES	HOT-DIP GALVANIZED
	SCREENING EQUIPMENT	STAINLESS STEEL FACTORY FINISH - NO COATING REQUIRED
	WASHPRESS EQUIPMENT	STAINLESS STEEL FACTORY FINISH - NO COATING REQUIRED
	INFLUENT PUMPS	EPOXY FACTORY FINISH-TOUCH-UP/REPAIR PER MFG RECOMMENDATIONS
	STAINLESS STEEL GATES	NO COATING
<b>PRIMARY CLARIFIER</b>		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	SUBMERGED CONCRETE WALLS	NO COATING REQUIRED
	SUBMERGED CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	LAUNDER CONCRETE WALLS AND FLOOR	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	CLARIFIER MECHANISM	COATING SYSTEM 104
	V-NOTCH WEIR	NO COATING REQUIRED
<b>TRICKLING FILTERS</b>		
	EXISTING MECHANISM	NO COATING REQUIRED
<b>MBBR PUMP STATION</b>		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	WET WELL CONCRETE WALLS	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	WET WELL CONCRETE FLOOR/SLABS	COAT PER TECHNICAL SPECIFICATION SECTION 099657
	INTERIOR CONCRETE WALLS	NO COATING REQUIRED
	INTERIOR CONCRETE FLOOR	NO COATING REQUIRED
	MBBR SUBMERSIBLE PUMPS	EPOXY FACTORY FINISH-TOUCH-UP/REPAIR PER MFG RECOMMENDATIONS
<b>BLOWER BUILDING</b>		
	EXTERIOR CONCRETE WALLS BELOW GROUND	NO COATING REQUIRED
	EXTERIOR CONCRETE WALLS ABOVE GROUND	NO COATING REQUIRED
	INTERIOR CONCRETE WALLS	NO COATING REQUIRED
	CONCRETE SLABS/FLOOR	NO COATING REQUIRED
	INTERIOR ROOF TRUSSES	HOT-DIP GALVANIZED
	BLOWERS	FACTORY FINISH - NO COATING REQUIRED
	CLASSIFIER	FACTORY FINISH - NO COATING REQUIRED

**NOTES:**

- UNLESS NOTED OTHERWISE, SURFACE PREPARATION AND COATING SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 098000.
- ALL COLORS SHALL BE SELECTED BY OWNER, PIPE LABELING AND COLOR CODING SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 220553.
- WHERE AN ITEM IS NOT SPECIFICALLY INCLUDED IN THE TABLE, REFER TO TECHNICAL SPECIFICATIONS SECTION 098000. WHERE ONE OR MORE COATING SYSTEM APPEAR TO BE APPLICABLE BASED ON GENERAL DESCRIPTION, THE MORE STRINGENT (ROBUST) COATING SHALL BE USED (FOLLOWING REVIEW AND APPROVAL BY THE ENGINEER).
- CONCRETE SURFACE FINISH SHALL BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 033000.
- FOR ARCHITECTURAL FINISHES AND COATING REQUIREMENTS SEE TECHNICAL SPECIFICATION 09900.

DRAWING IS TO SCALE  
IF BAR MEASURES:  
1" = FULL SCALE  
1/2" = HALF SCALE

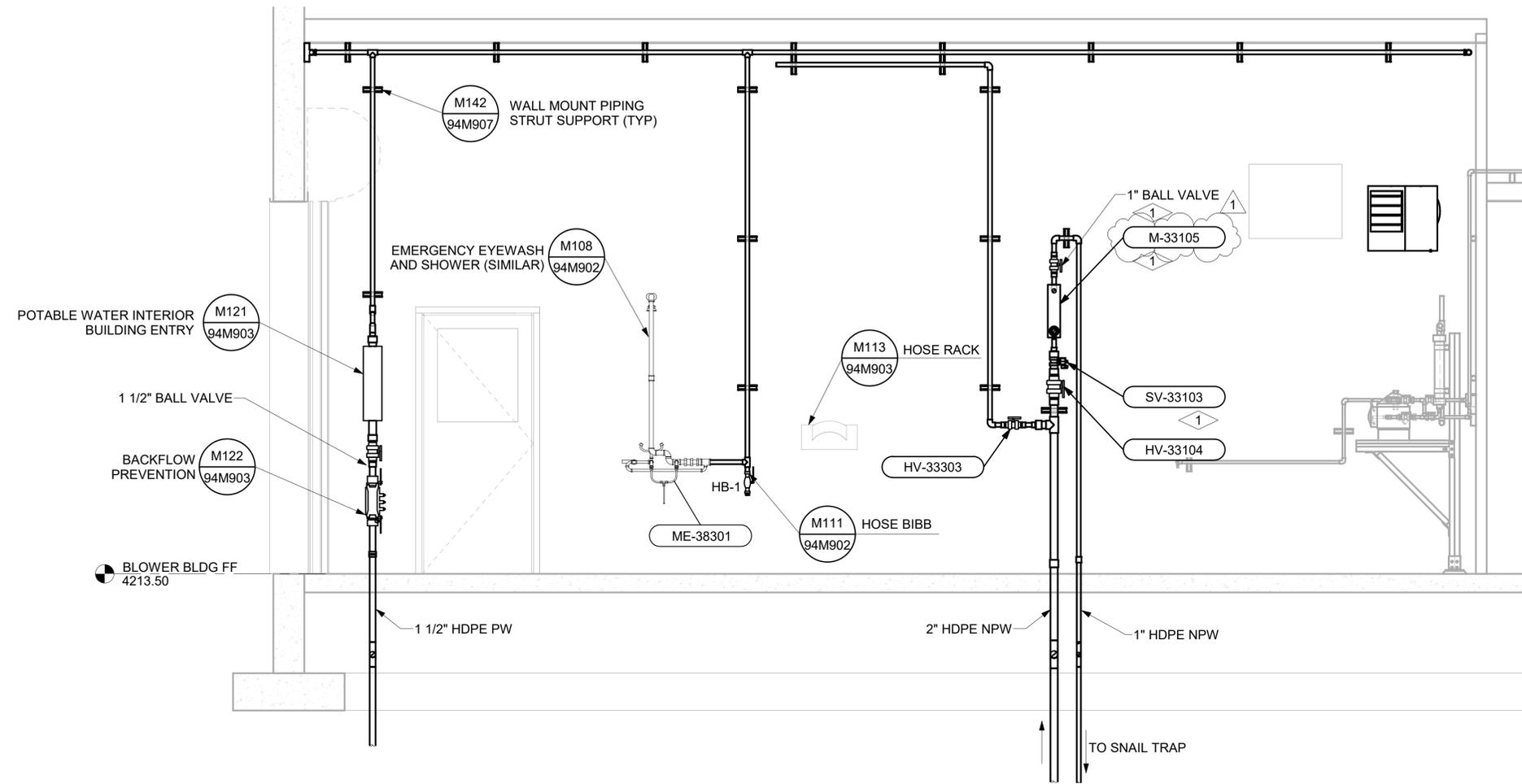
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REVISIONS		BDP	BDP	BMR
1	04/29/2024			

SOUTH DAVIS SEWER DISTRICT  
NORTH PLANT UPGRADE  
GENERAL  
COATING SCHEDULE



DRAWING NO.  
**G019**  
SHEET

4/29/2024 11:53:38 AM BIM 360://001709.C.SDS North Plant Upgrade/MBBR V21.rvt



**A SECTION**  
 33P201 1/2" = 1'-0"  
 Scale in Feet

**KEYNOTES:**

- CONFIRM SNAIL TRAP, FLUIDIZING WATER REQ'S W/ SUPPLIER INCLUDING LINE SIZE, CONTROL, (E.G. SOLENOID VALVES & ROTAMETERS).

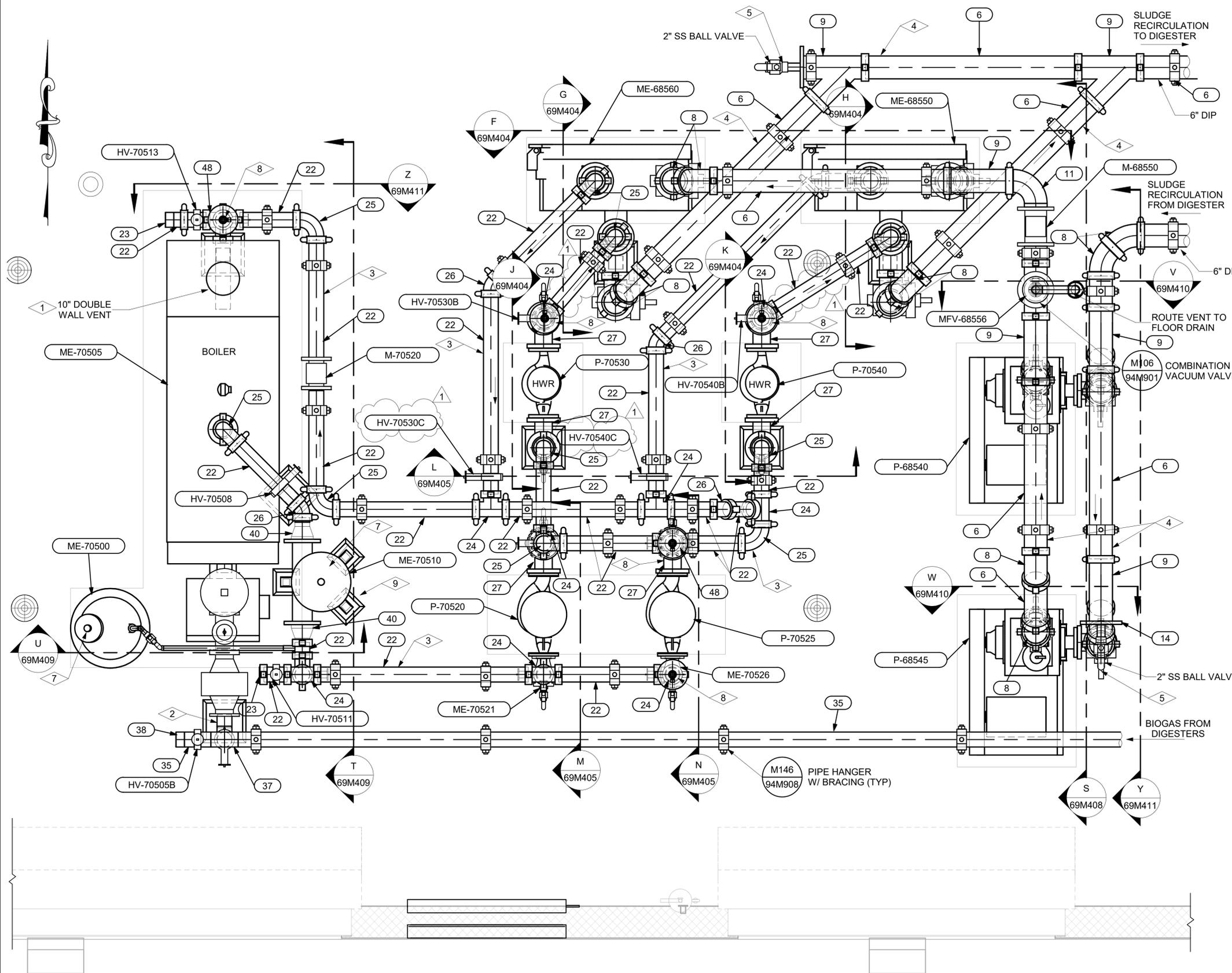
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REVISIONS		DESIGN		DRAWN	
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1	04/29/2024	SPB	BDP	BMR	

SOUTH DAVIS SEWER DISTRICT  
 NORTH PLANT UPGRADE  
 MBBR / SNAIL TRAP / BLOWER BUILDING  
 PLUMBING SECTION



DRAWING NO.  
**33P401**  
 SHEET

4/29/2024 12:28:35 PM BIM 360://001709.C.SDSO North Plant Upgrade/DIGESTER-V21.rvt



5  
69M204  
**HOT WATER & SLUDGE RECIRCULATION PLAN**  
3/4" = 1'-0"  
Scale in Feet

**NOTES:**

1. REFER TO 69M801 FOR PIPE SCHEDULE.
2. PROVIDE PIPE SUPPORTS AND HANGERS WHERE INDICATED AND AS REQUIRED BY CODE.
3. PIPE CONFIGURATION BASED ON PRELIMINARY INFORMATION FOR DESIGN BASED EQUIPMENT. CONTRACTOR TO ADJUST PIPING ROUTING TO ACCOMMODATE FURNISHED EQUIPMENT.
4. CONNECT EXPANSION TANK TO HOT WATER SUPPLY LINE PER BOILER SUPPLIER RECOMMENDATIONS. SEE MECHANICAL SECTIONS FOR MORE PLACEMENT DETAILS.

**KEYNOTES:**

1. CONFIRM BOILER VENT SIZE AND REQUIREMENTS WITH SUPPLIER.
2. CONNECT BIOGAS TO BOILER SKID PER MANUFACTURER REQUIREMENTS.
3. INSULATE HOT WATER PIPING.
4. INSULATE SLUDGE RECIRCULATION PIPING.
5. PROVIDE 2" SS SCH 40 PIPE FOR CLEANOUT CONNECTION TO COMPANION FLANGE.
6. COORDINATE AND CONFIRM FINAL LOCATION FOR ALL INSTRUMENTS IN FIELD WITH ENGINEER AND OWNER.
7. CONNECT EXPANSION TANK AND AIR SEPARATOR TO HOT WATER SUPPLY LINE PER BOILER SUPPLIER RECOMMENDATIONS.
8. PROVIDE 1" TAP TO 4" HOT WATER LINE WITH 1" SS BALL VALVE FOR DRAIN OR AIR VENT PORT. SEE DETAIL 2 ON SHEET 69M901.
9. PROVIDE (3) GALVANIZED PIPE SUPPORTS FOR AIRSEPARATOR. CONFIRM FINAL CONFIGURATION AND LAYOUT WITH EQUIPMENT SUPPLIER AND ENGINEER SEE SECTION FOR ADDITIONAL DETAILS.

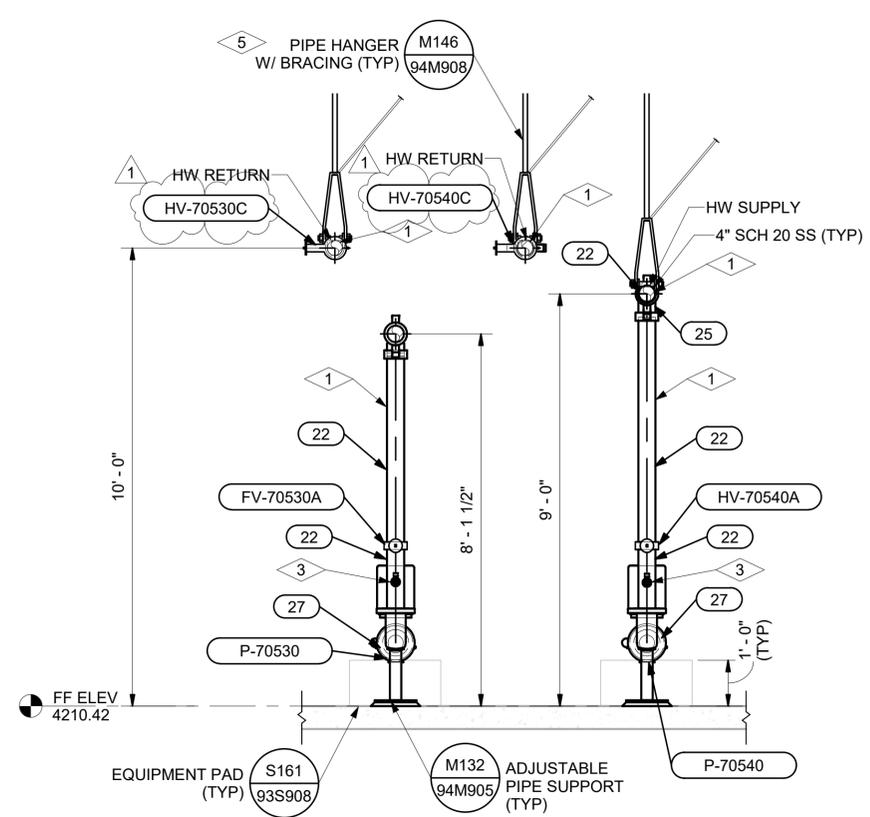
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IF BAR MEASURES:		BMR	
1" = FULL SCALE		DESIGN	
1/2" = HALF SCALE		EES	
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SOUTH DAVIS SEWER PLANT  
 NORTH PLANT UPGRADE  
 PRIMARY DIGESTER BUILDING/DIGESTER  
 MECHANICAL  
 HOT WATER & SLUDGE RECIRCULATION PLAN

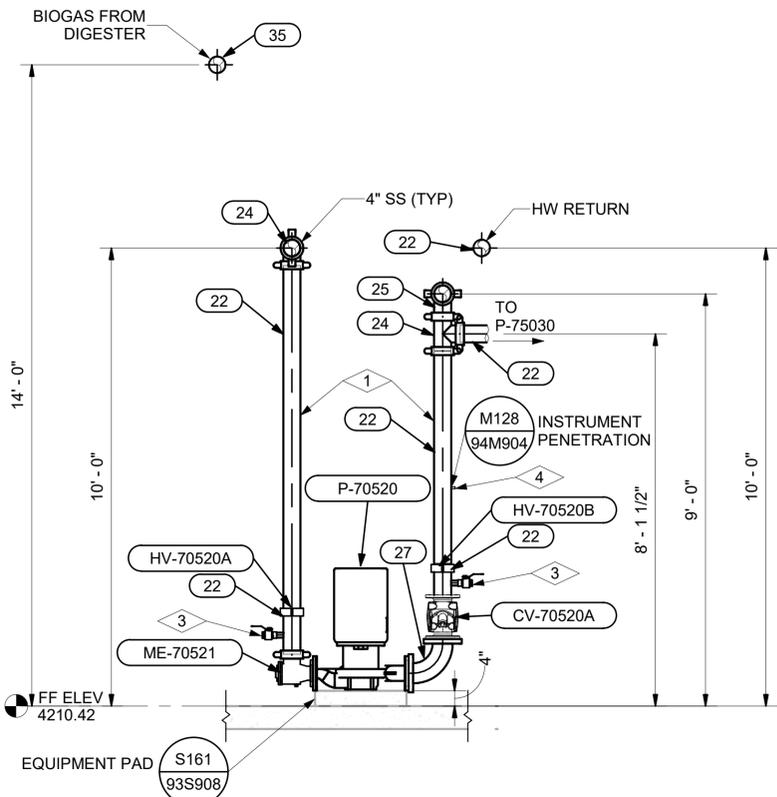


DRAWING NO.  
**69M206**  
SHEET

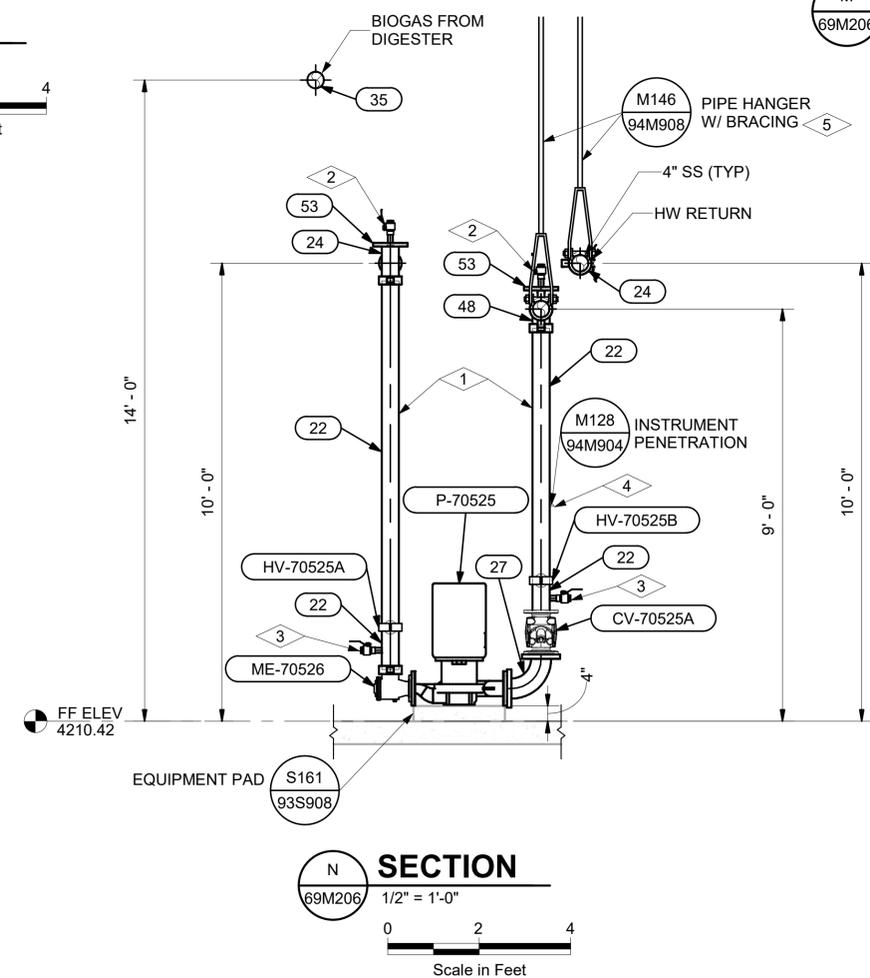
4/29/2024 12:28:36 PM BIM 360://001709.C.SDSO North Plant Upgrade/DIGESTER-V21.rvt



**L SECTION**  
69M206 1/2" = 1'-0"  
Scale in Feet



**M SECTION**  
69M206 1/2" = 1'-0"  
Scale in Feet



**N SECTION**  
69M206 1/2" = 1'-0"  
Scale in Feet

- NOTES:**
- REFER TO 69M801 FOR PIPE SCHEDULE.
  - COORDINATE AND CONFIRM FINAL LOCATION FOR ALL INSTRUMENTS IN FIELD WITH ENGINEER AND OWNER.
  - PIPE CONFIGURATION BASED ON PRELIMINARY INFORMATION FOR DESIGN BASED EQUIPMENT. CONTRACTOR TO ADJUST PIPING ROUTING TO ACCOMMODATE FURNISHED EQUIPMENT.
  - PROVIDE PIPE SUPPORTS AND HANGERS WHERE INDICATED AND AS REQUIRED BY CODE.
- KEYNOTES:**
- INSULATE ALL HOT WATER PIPING.
  - PROVIDE 1" TAP TO 4" HOT WATER LINE WITH 1" SS BALL VALVE FOR DRAIN OR AIR VENT PORT. SEE DETAIL 2 ON SHEET 69M901.
  - TAP 4" LNE FOR 1" NPT SS SPOOL. PROVIDE 1" SS BALL VALVE ON SPOOL FOR HOT WATER DRAIN POINT.
  - COORDINATE FIELD INSTRUMENT INSTALLATION WITH OPERATORS AND ELECTRICAL DRAWINGS.
  - SUPPORT PIPE HANGER FROM TEE BEAM HANGERS AS NEEDED. SEE TEE BEAM HANGER DETAIL S1002 ON SHEET 93S911.

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE				
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NO.	DATE	DESIGN	DRAWN	CHECKED
1	04/29/2024	EES	BDP	BMR

SOUTH DAVIS SEWER PLANT  
 NORTH PLANT UPGRADE  
 PRIMARY DIGESTER BUILDING/DIGESTER  
 MECHANICAL  
 SECTIONS



DRAWING NO.  
**69M405**  
SHEET

4/29/2024 C:\USERS\DANIEL\LEAVITT\DC\ACCCDCS\AQUA ENGINEERING\001709.C\SDSD NORTH PLANT UPGRADE\PROJECT FILES\980 SCHEDULES\984-84M802 MECHANICAL SCHEDULE.DWG

MECHANICAL EQUIPMENT SCHEDULE					
ME#	LOCATION	ITEM	SERVICE	HP (KW)	REMARKS
ME-68530	PRIMARY DIGESTER	ANAEROBIC DIGESTER	SLUDGE DIGESTION	-	80 FT DIAMETER DIGESTER WITH LINEAR MOTION MIXER, 155,500 CU-FT OR EQUAL
ME-68534A	NEW PRIMARY DIGESTER	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	VAREC RELIEF VALVE MODEL 5811B-4-1 W/ WEATHER COVER OR EQUAL
ME-68534B	NEW PRIMARY DIGESTER	RELIEF VALVE W/ FLAME ARRESTER ASSEMBLY	DIGESTER TANK PRESSURE RELIEF	-	VAREC RELIEF VALVE MODEL 5811B-4-1 W/ WEATHER COVER OR EQUAL
ME-68537	DIGESTER BUILDING	SEDIMENT TRAP	BIOGAS CONDENSATE AND SEDIMENT TRAP	-	6" VAREC CONDENSATE SEDIMENT TRAP MODEL 233-06-F-S OR EQUAL
ME-68550	DIGESTER BUILDING	HEAT EXCHANGER	SLUDGE HEATING	.	6" ALFA LAVAL SPIRAL HEAT EXCHANGER MODEL SW OR EQUAL
ME-68560	DIGESTER BUILDING	HEAT EXCHANGER	SLUDGE HEATING	.	6" ALFA LAVAL SPIRAL HEAT EXCHANGER MODEL SW OR EQUAL
ME-70500	DIGESTER BUILDING	EXPANSION TANK	HOT WATER LOOP EXPANSION	-	80 GAL BELL & GOSSETT SERIES B-300 FULL ACCEPTANCE TANK OR EQUAL
ME-70504	DIGESTER BUILDING	FLAME ARRESTER	BOILER DIGESTER GAS LINE FLAME ARRESTER	-	4" VAREC MODEL 5010 FLAME ARRESTER WITH THERMAL SHUTOFF VALVE OR EQUAL
ME-70505	DIGESTER BUILDING	BOILER	HOT WATER LOOP HEATING	-	ALDRICH COMPANY SERIES A3W4-60-G, 2,410,000 BTUH
ME-70510	DIGESTER BUILDING	AIR SEPARATOR	HOT WATER LOOP AIR SEPARATOR	-	34 GAL BELL & GOSSETT ROLAIRTROL R-6F (B) OR EQUAL
ME-70521	DIGESTER BUILDING	SUCTION DIFFUSER	HEAT PUMP FLOW CONDITIONING	.	BELL & GOSSETT SUCTION DIFFUSER
ME-70526	DIGESTER BUILDING	SUCTION DIFFUSER	HEAT PUMP FLOW CONDITIONING	.	BELL & GOSSETT SUCTION DIFFUSER
ME-72510	FLARE LINE	FLARE IGNITION SYSTEM	WASTE GAS BURNER IGNITION	120V	PROVIDED WITH FLARE PACKAGE
ME-72520	FLARE LINE	DIGESTER GAS FLARE	WASTE GAS BURNER	.	6" VAREC 244W SERIES WASTE GAS BURNER AND IGNITION SYSTEM OR EQUAL
ME-72530	FLARE LINE	FLAME TRAP ASSEMBLY	LINE IGNITION PROTECTION AND PRESSURE RELIEF	-	4" VAREC MODEL 440 SERIES FLAME TRAP ASSEMBLY OR EQUAL
ME-76231	DIGESTER BUILDING 2	SEDIMENT TRAP	BIOGAS CONDENSATE AND SEDIMENT TRAP	-	4" VAREC CONDENSATE SEDIMENT TRAP MODEL 233-06-F-S OR EQUAL
ME-76232	DIGESTER BUILDING 2	DRIP TRAP	BIOGAS CONDENSATE DRAIN	-	4" VAREC MANUAL DRIP TRAP MODEL 2466 OR EQUAL
ME-76233	DIGESTER BUILDING 2	FLAME TRAP	BIOGAS LINE FLARE ARRESTER	-	4" VAREC 4500421S OR EQUAL
ME-80500	DEWATERING BUILDING	EMERGENCY EYE WASH AND SHOWER	EMERGENCY EYE WASH AND SHOWER	-	EMERGENCY SHOWER AND EYEWASH MODEL 8300.158 OR EQUAL
ME-80510	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X17' HORIZONTAL SHAFTLESS SCREW CONVEYOR FROM DEWATERING	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80515	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X17' VERTICAL SHAFTLESS SCREW CONVEYOR	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80517	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X23'-6" HORIZONTAL SCREW CONVEYOR TO SLUDGE DRYING BED	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80520	DEWATERING BUILDING	SCREW CONVEYOR	10 1/4"X28' HORIZONTAL SHAFTLESS SCREW CONVEYOR TO TRUCKS	480V / 3 HP	JDV SHAFTLESS SCREW CONVEYOR OR EQUAL
ME-80601	DEWATERING BUILDING	MONORAIL CRANE	DEWATERING PRESS CRANE	460V / 15HP	AMERICAN EQUIPMENT SYSTEMS 5 TON MONORAIL CRANE CLASS 1, DIVISION 2 RATED OR EQUAL

1

DRAWING IS TO SCALE  
IF BAR MEASURES:  
1" = FULL SCALE  
1/2" = HALF SCALE

NO.	DATE	DESIGN	DRAWN	CHECKED	REVISIONS	
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1	04/29/2024					

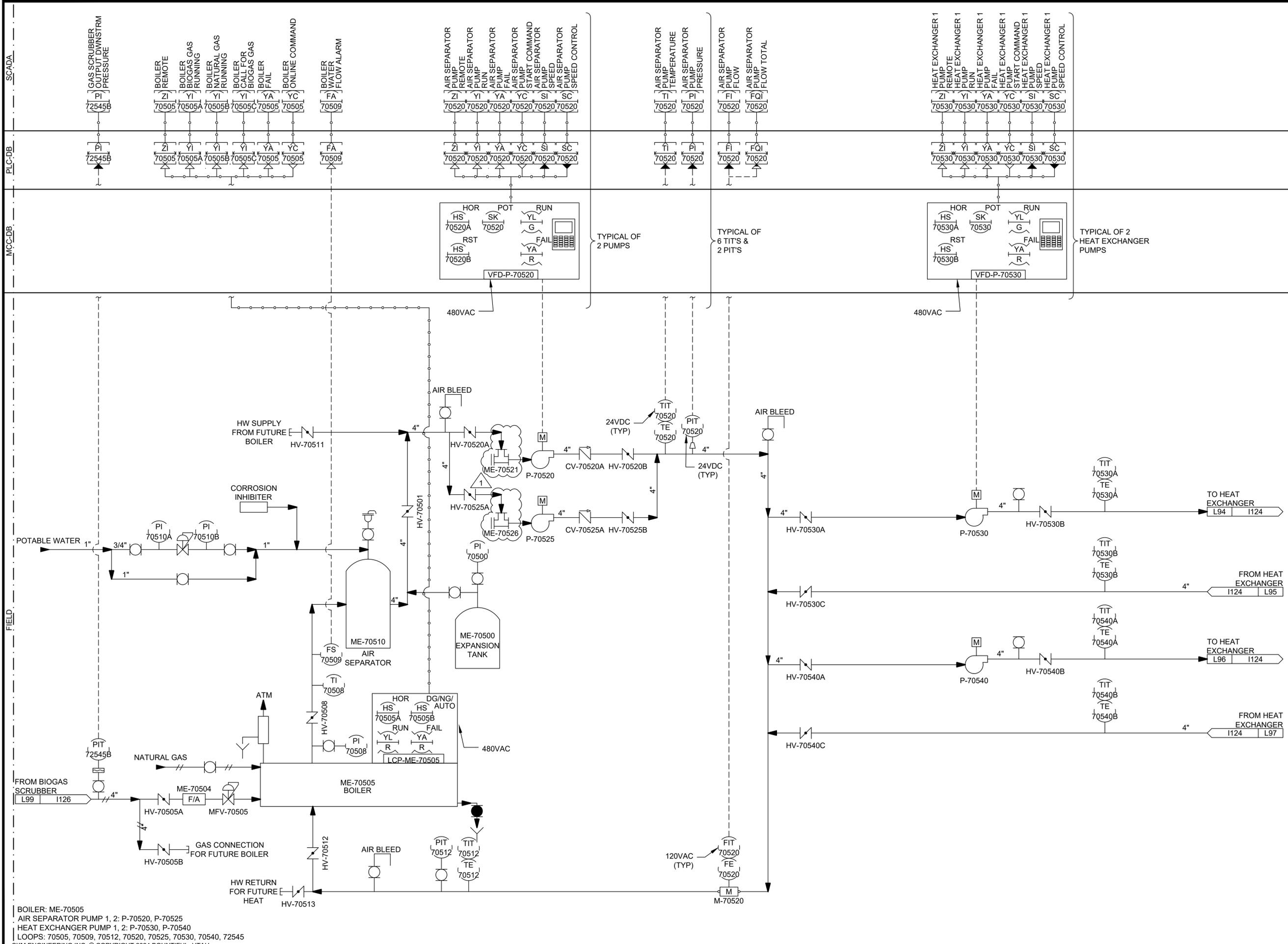
SOUTH DAVIS SEWER DISTRICT  
NORTH PLANT UPGRADE  
SCHEDULES  
MECHANICAL EQUIPMENT



533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010  
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.  
**81M803**  
SHEET

C:\USERS\DANIEL.LEAVITT\APPDATA\LOCAL\AUTOCAD\PLANT 3D\COLORATION\CACHE\SOUTH DAVIS SEWER DISTRICT - NORTH PLANT UPGRADE\PID DWG\998-1125.DWG



BOILER: ME-70505  
 AIR SEPARATOR PUMP 1, 2: P-70520, P-70525  
 HEAT EXCHANGER PUMP 1, 2: P-70530, P-70540  
 LOOPS: 70505, 70509, 70512, 70520, 70525, 70530, 70540, 70544, 72545  
 SKM ENGINEERING INC. © COPYRIGHT 2024 BOUNTIFUL, UTAH

MCC-DB

PLC-DB

SCADA

DRAWING IS TO SCALE  
IF BAR MEASURES:  
1/2" = HALF SCALE

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REVISIONS		EIT	DCL	BMR	
1	04/29/2024				

**SOUTH DAVIS SEWER DISTRICT**  
**NORTH PLANT UPGRADE**  
**1800 W 1200 N WEST BOUNTIFUL, UT 84087**  
**INSTRUMENTATION - P&ID**  
**BOILER AND HW RECIRCULATION**

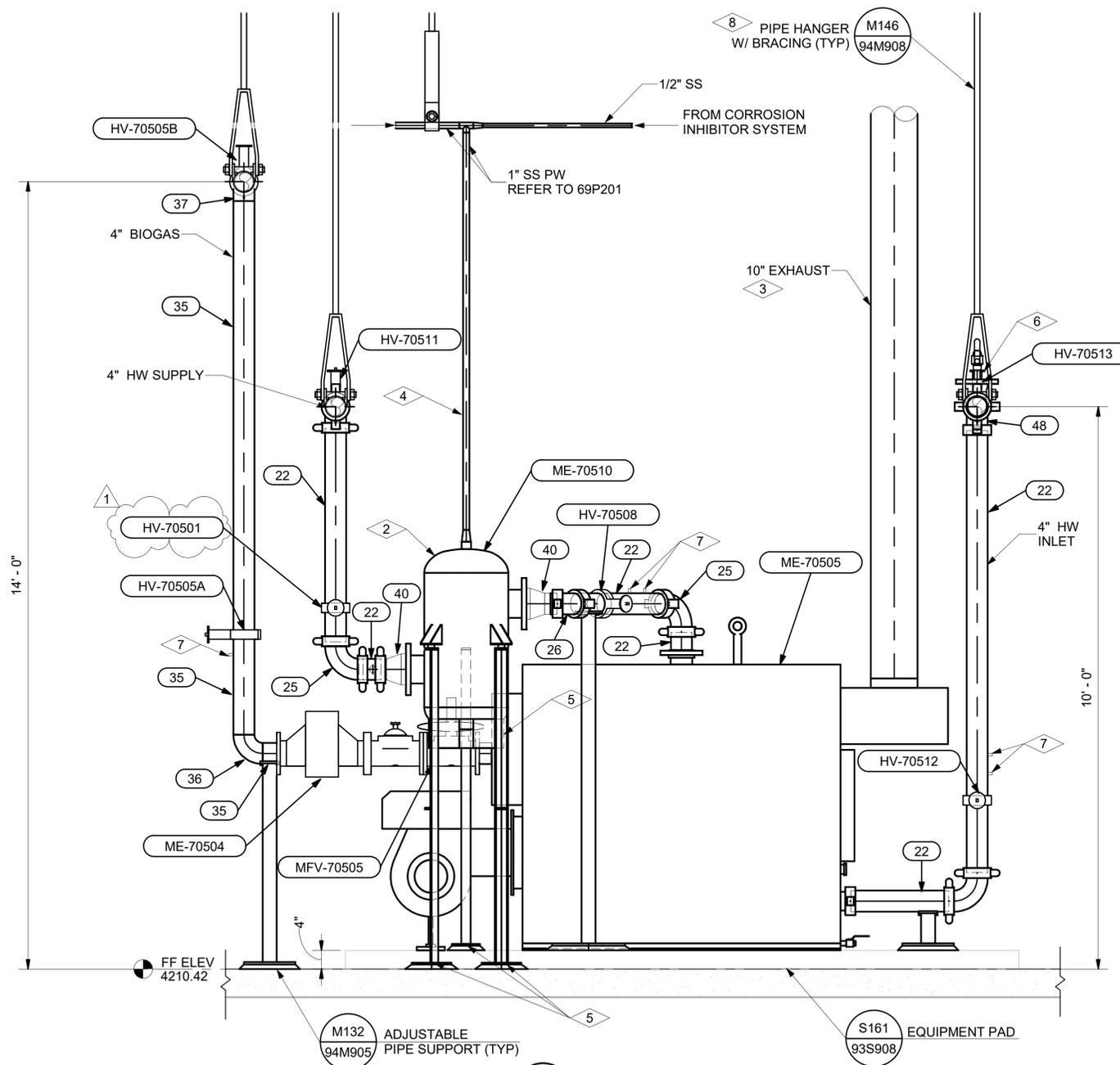
533 W 2600 S, Suite 25  
 Bountiful, Utah 84010  
 Phone: (801) 677-0011  
 www.skmeng.com



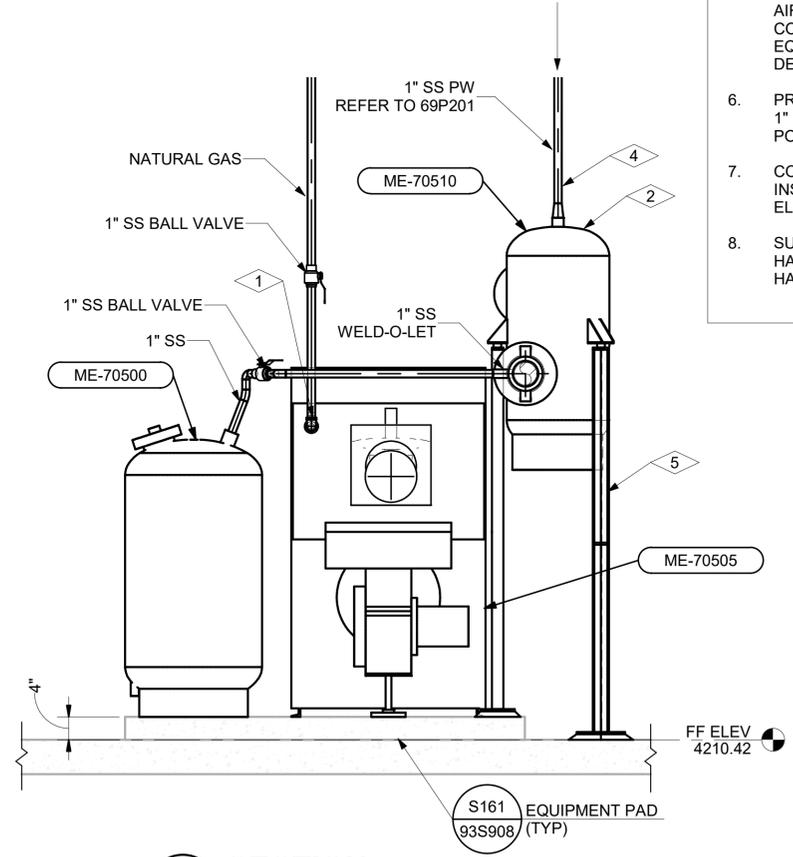
533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010  
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO. **I125**  
SHEET

4/29/2024 12:28:37 PM BIM 360://001709.C.SDSO North Plant Upgrade/DIGESTER-V21.rvt



**T SECTION**  
 69M206 3/4" = 1'-0"  
 Scale in Feet



**U SECTION**  
 69M206 3/4" = 1'-0"  
 Scale in Feet

- NOTES:**
- REFER TO 69M801 FOR PIPE SCHEDULE.
  - PIPE CONFIGURATION BASED ON PRELIMINARY INFORMATION FOR DESIGN BASED EQUIPMENT. CONTRACTOR TO ADJUST PIPING ROUTING TO ACCOMMODATE FURNISHED EQUIPMENT.
  - PROVIDE PIPE SUPPORTS AND HANGERS WHERE INDICATED AND AS REQUIRED BY CODE.

- KEYNOTES:**
- CONNECT BIOGAS AND NATURAL GAS TO BOILER AS REQUIRED BY BOILER SUPPLIER. CONTRACTOR TO COORDINATE SCOPE AND REQUIREMENTS PER GAS PRESSURE REGULATING VALVES FOR CONNECTIONS.
  - CONNECT EXPANSION TANK TO HOT WATER SUPPLY LINE PER BOILER SUPPLIER RECOMMENDATIONS.
  - CONFIRM BOILER VENT SIZE AND REQUIREMENTS WITH SUPPLIER.
  - CONNECT CORROSION INHIBITOR AND POTABLE WATER TO AIR SEPARATOR.
  - PROVIDE (3) GALVANIZED SUPPORTS FOR AIRSEPARATOR. CONFIRM FINAL CONFIGURATION AND LAYOUT WITH EQUIPMENT SUPPLIER AND ENGINEER SEE DETAIL 1 ON SHEET 69M901.
  - PROVIDE 1" TAP TO 4" HOT WATER LINE WITH 1" SS BALL VALVE FOR DRAIN OR AIR VENT PORT. SEE DETAIL 2 ON SHEET 69M901.
  - COORDINATE FIELD INSTRUMENT INSTALLATION WITH OPERATORS AND ELECTRICAL DRAWINGS.
  - SUPPORT PIPE HANGER FROM TEE BEAM HANGERS AS NEEDED. SEE TEE BEAM HANGER DETAIL S1002 ON SHEET 93S911.

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B.	04/01/2024	EES	BDP	BMR	
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SOUTH DAVIS SEWER PLANT  
 NORTH PLANT UPGRADE  
 PRIMARY DIGESTER BUILDING/DIGESTER  
 MECHANICAL  
 SECTION



DRAWING NO.  
**69M409**  
 SHEET

PIPE SCHEDULE				
NO.	DESCRIPTION	SIZE	JOINT	MATERIAL
1	SPOOL	24"	FLGxPE	DIP
2	BLIND FLANGE	24"	FLG	DIP
3	SPOOL	8"	GROOVED	DIP
4	BLIND FLANGE	8"	FLG	DIP
5	COMPANION FLANGE	8"x1"	FLGxNPT	DIP
6	SPOOL	6"	GROOVED	DIP
7	22.5° BEND	6"	GROOVED	DIP
8	45° BEND	6"	GROOVED	DIP
9	WYE	6"	GROOVED	DIP
10	11.25° BEND	6"	GROOVED	DIP
11	90° BEND	6"	GROOVED	DIP
12	CONCENTRIC REDUCER	6"x4"	GROOVED	DIP
13	CROSS	6"	GROOVED	DIP
14	COMPANION FLANGE	6"x2"	FLGxNPT	DIP
15	TEE	6"	GROOVED	DIP
16	FLANGE ADAPTER W/ SS BACKER RING	6"	PE	HDPE
17	SPOOL	6"	PE	HDPE
18	90° BEND	6"	PE	HDPE
19	SPOOL	4"	GROOVED	DIP
20	TEE	4"	GROOVED	DIP
21	90° LONG RADIUS BEND	4"	GROOVED	DIP
22	SPOOL	4"	GROOVED	SCH 40 WS
23	CAP	4"	GROOVED	SCH 40 WS
24	TEE	4"	GROOVED	SCH 40 WS
25	90° BEND	4"	GROOVED	SCH 40 WS
26	45° BEND	4"	GROOVED	SCH 40 WS
27	90° LONG RADIUS BEND	4"	GROOVED	SCH 40 WS
28	SPOOL	6"	PE	SCH 20 SS
29	90° BEND	6"	PE	SCH 20 SS
30	11.25° BEND	6"	PE	SCH 20 SS
31	22.5° BEND	6"	PE	SCH 20 SS
32	45° BEND	6"	PE	SCH 20 SS
33	TEE	6"	PE	SCH 20 SS
34	CONCENTRIC REDUCER	6"x4"	PE	SCH 20 SS
35	SPOOL	4"	PE	SCH 20 SS
36	90° BEND	4"	PE	SCH 20 SS
37	TEE	4"	PE	SCH 20 SS
38	CAP	4"	PE	SCH 20 SS
39	BLIND FLANGE	6"	FLG	DIP
40	CONCENTRIC REDUCER	6"x4"	GROOVED	SCH 40 WS
41	45° BEND	6"	PE	HDRE
42	SPOOL	6"	PE	SCH 40 PVC
43	90° BEND	6"	SOCKET	SCH 40 PVC
44	45° BEND	6"	SOCKET	SCH 40 PVC
45	SPOOL	6"	GROOVEDxFLG	DIP
46	90° BEND	6"	FLG	DIP
47	SPOOL	6"	FLG	DIP
48	CROSS	4"	GROOVED	SCH 40 WS
49	SPOOL	2"	PExNPT	SCH 40 SS
50	SPOOL	2"	NPTxFLG	SCH 40 SS
51	REDUCING FERNCO *	4"x1"	-	RUBBER
52	REDUCING FERNCO *	4"x2"	-	RUBBER
53	COMPANION FLANGE	4"x1"	FLGxNPT	SCH 40 WS

\* SERIES 1056 COULER OR EQUAL

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE	
0	1/2
1	1

ORIGINAL		DESIGN		DRAWN		CHECKED	
NO.	DATE	DESIGN	DRAWN	EES	BDP	EES	BMR
B	04/01/2024						

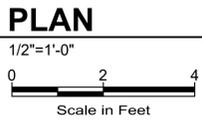
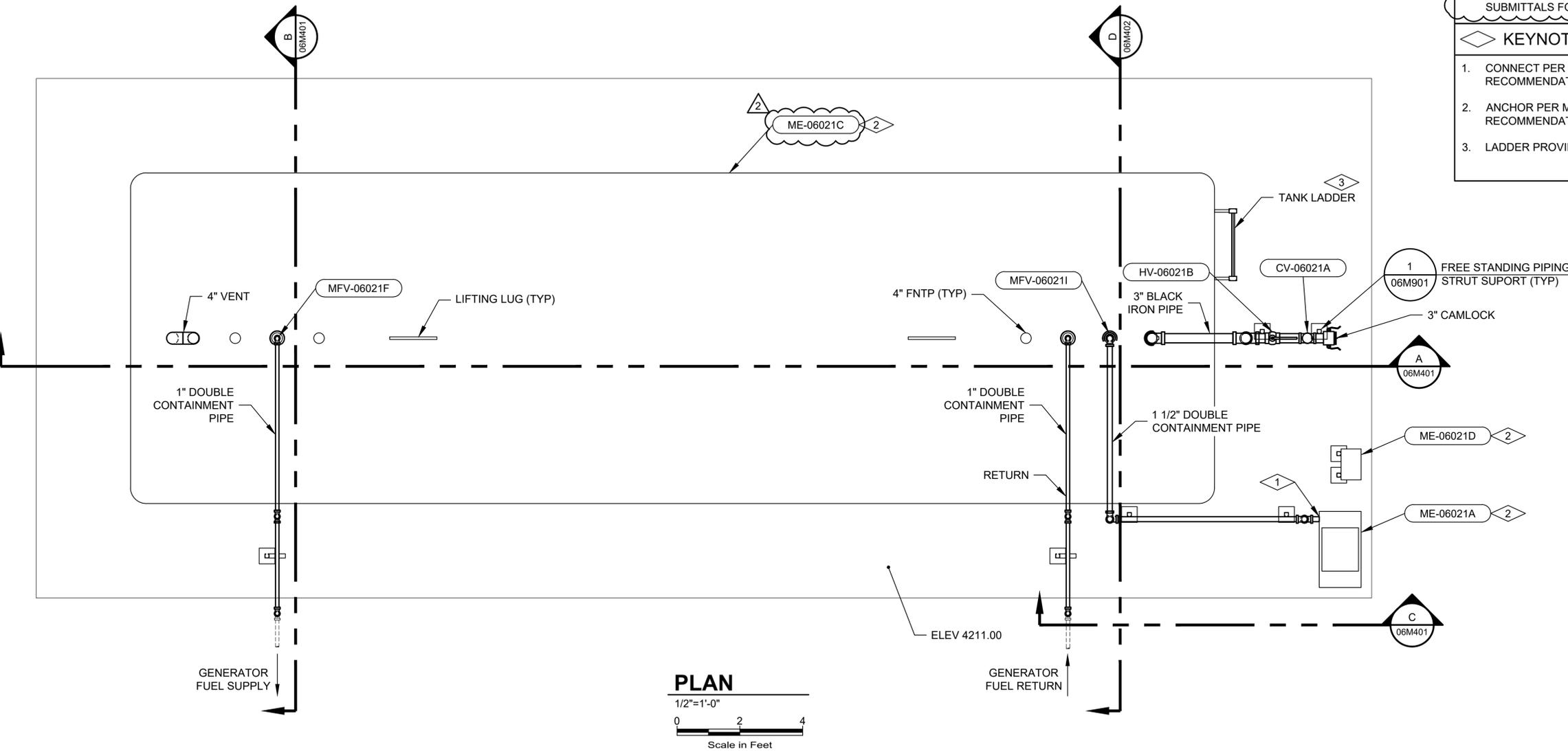
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NO.	DATE	DESIGN	DRAWN	EES	BDP	EES	BMR
1	04/29/2024						

SOUTH DAVIS SEWER PLANT  
-  
NORTH PLANT UPGRADE  
-  
PRIMARY DIGESTER BUILDING/DIGESTER  
MECHANICAL  
PIPE SCHEDULE



DRAWING NO.  
**69M801**  
SHEET

4/29/2024 C:\USERS\IBRETT.PRATT\DCI\ACCD\CS\AQUA ENGINEERING\001709.C SDSD NORTH PLANT UPGRADE\PROJECT FILES\002 STRUCTURES\06 FUEL STATION\060-06M201 - MECH PLAN.DWG



- NOTES:**
- CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.
  - CAP TANK PORTS NOT USED.
  - SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION.
  - TANK SUPPLIER SHALL PROVIDE ABOVE AND UNDER GROUND DOUBLE CONTAINMENT PIPE. DOUBLETAC BY OMEGAFLEX OR APPROVED EQUAL.
  - CONTRACTOR SHALL COORDINATE FINAL FUEL PIPING LAYOUT BETWEEN DIESEL TANK AND GENERATOR UPON APPROVAL OF FINAL SUBMITTALS FOR THOSE EQUIPMENT.

- KEYNOTES:**
- CONNECT PER MANUFACTURERS RECOMMENDATIONS.
  - ANCHOR PER MANUFACTURERS RECOMMENDATIONS.
  - LADDER PROVIDED BY FUEL TANK SUPPLIER.

DRAWING IS TO SCALE  
IF BAR MEASURES:  
1" = FULL SCALE  
1/2" = HALF SCALE

NO.	DATE	ORIGINAL		DRAWN		CHECKED	
		DESIGN	EIT	BDP	BMR	BDP	BMR
B	04/01/2024						
		REVISIONS		BDP		BMR	
1	04/19/2024						
2	04/29/2024						

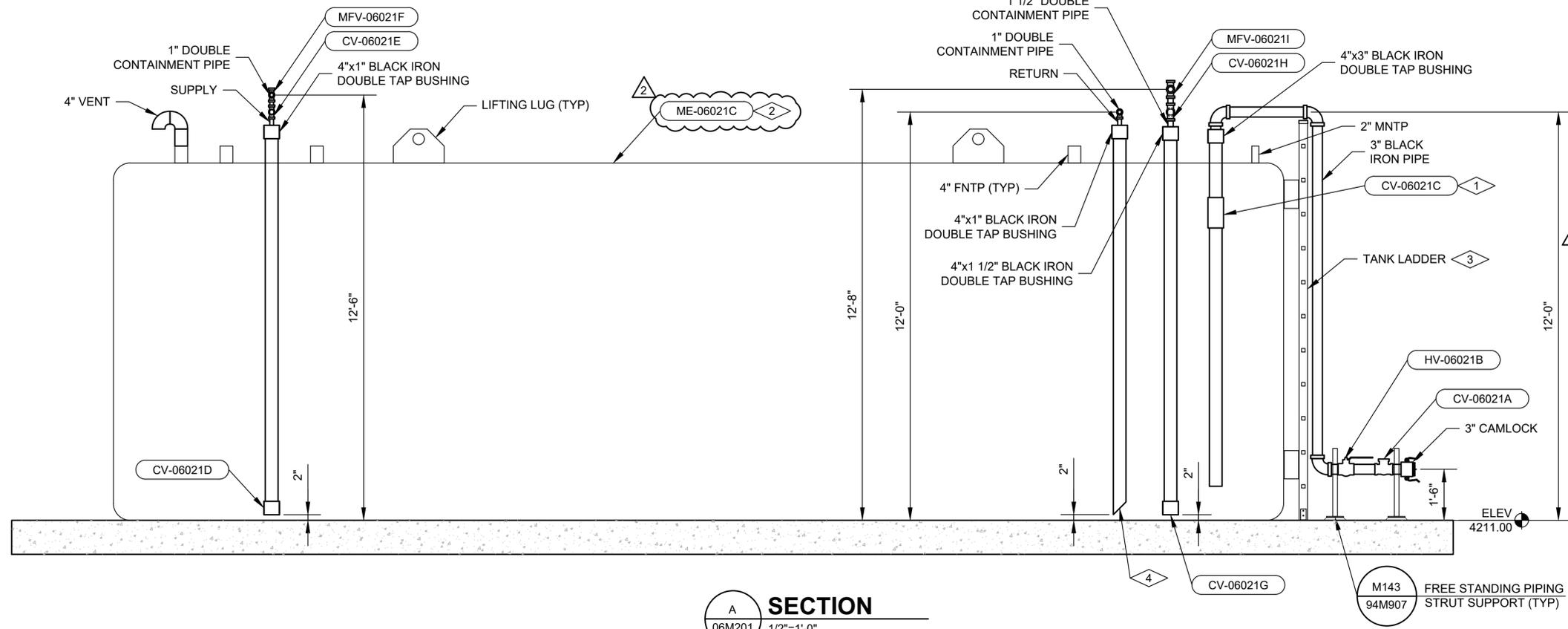
SOUTH DAVIS SEWER DISTRICT  
NORTH PLANT UPGRADE

FUEL STATION  
MECHANICAL  
PLAN



DRAWING NO.  
**06M201**  
SHEET

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**NOTES:**

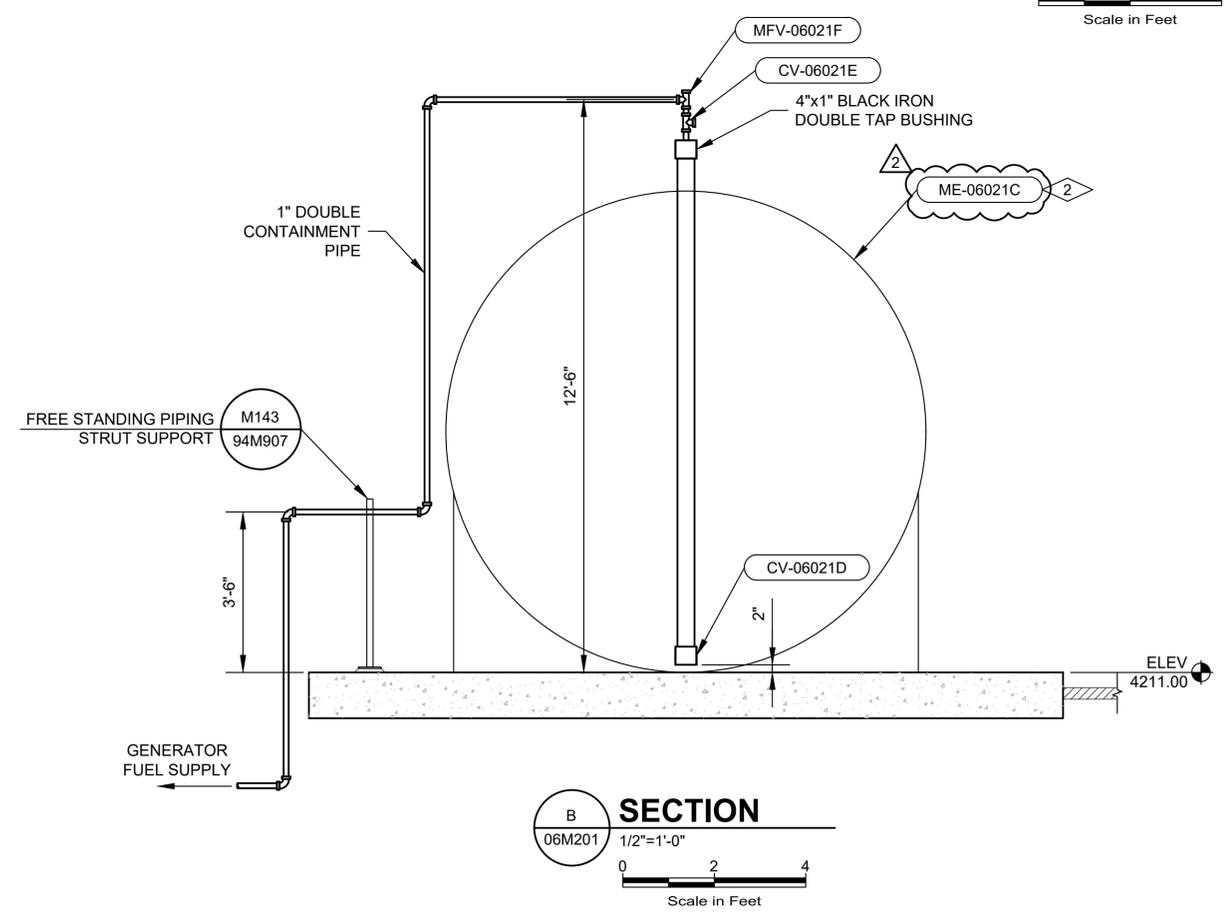
- CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.
- CAP TANK PORTS NOT USED.
- SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION.
- TANK SUPPLIER SHALL PROVIDE ABOVE AND UNDER GROUND DOUBLE CONTAINMENT PIPE. DOUBLETAC BY OMEGAFLEX OR APPROVED EQUAL.
- CONTRACTOR SHALL COORDINATE FINAL FUEL PIPING LAYOUT BETWEEN DIESEL TANK AND GENERATOR UPON APPROVAL OF FINAL SUBMITTALS FOR THOSE EQUIPMENT.

**KEYNOTES:**

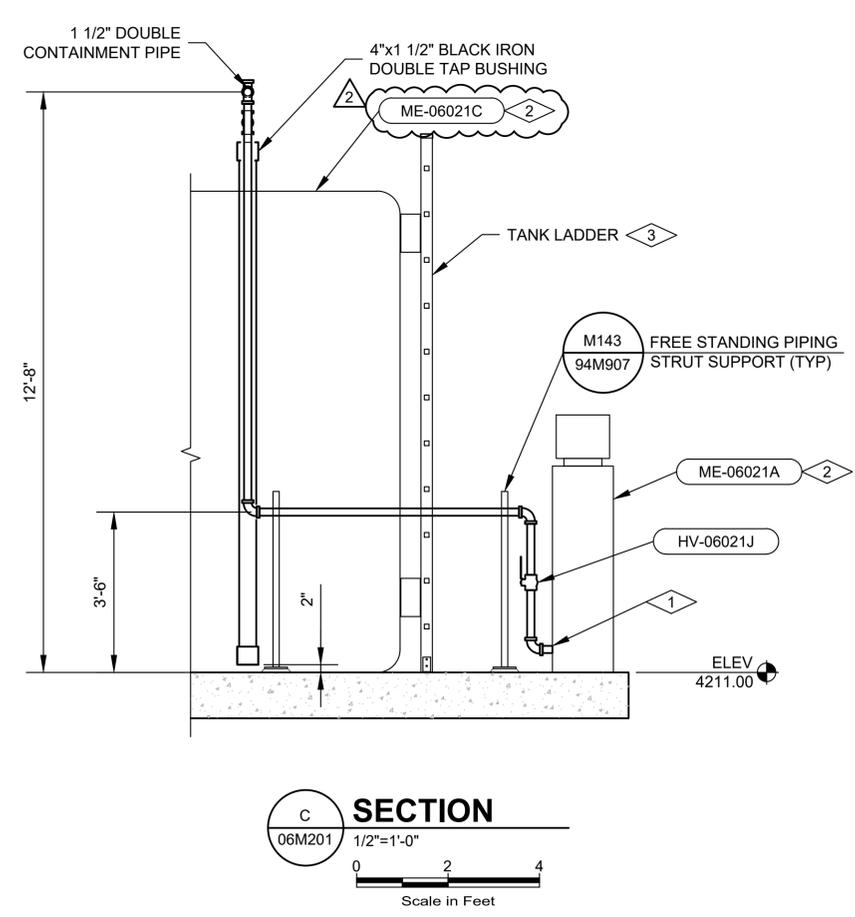
- CONNECT PER MANUFACTURERS RECOMMENDATIONS.
- ANCHOR PER MANUFACTURERS RECOMMENDATIONS.
- LADDER PROVIDED BY FUEL TANK SUPPLIER.
- CUT PIPE AT 45° ANGLE.

DRAWING IS TO SCALE IF BAR MEASURES: 1" = FULL SCALE 1/2" = HALF SCALE			
ORIGINAL	CHECKED		
NO.	DESIGN	DRAWN	CHECKED
B	BDP	EIT	BMR
REVISIONS		BDP	BMR
1	04/19/2024	EIT	BMR
2	04/29/2024	EIT	BMR

**A SECTION**  
 06M201 1/2"=1'-0"  
 Scale in Feet



**B SECTION**  
 06M201 1/2"=1'-0"  
 Scale in Feet



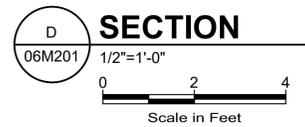
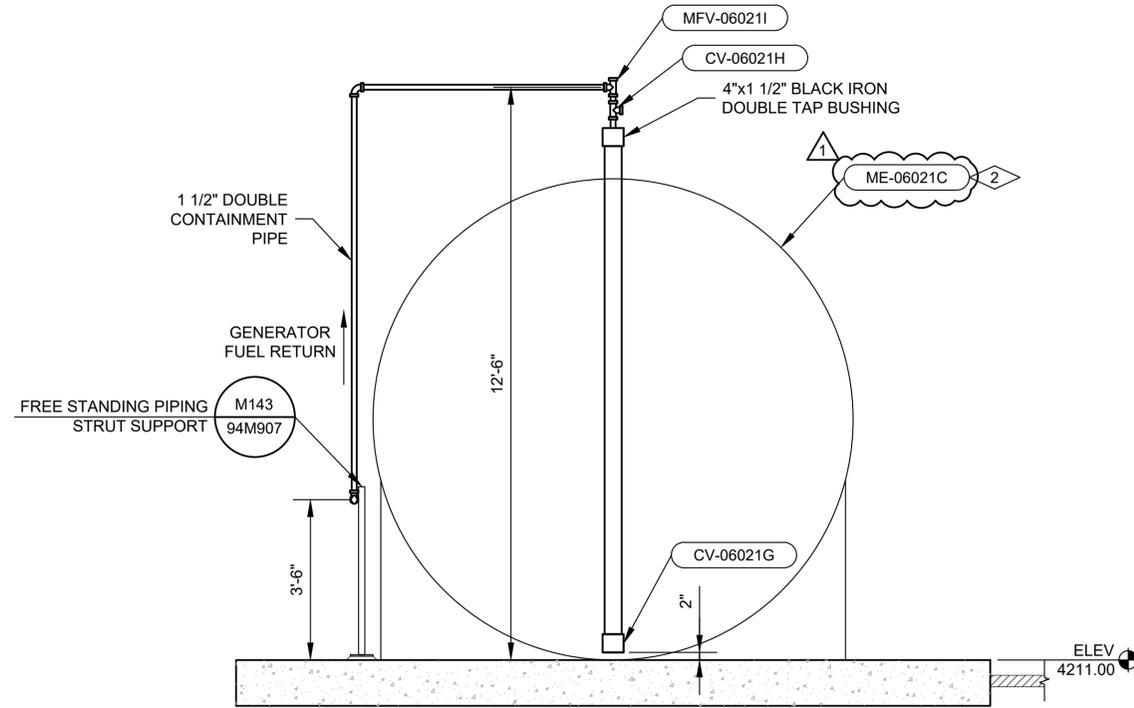
**C SECTION**  
 06M201 1/2"=1'-0"  
 Scale in Feet

SOUTH DAVIS SEWER DISTRICT  
 NORTH PLANT UPGRADE  
 FUEL STATION  
 MECHANICAL  
 SECTIONS



DRAWING NO.  
**06M401**  
 SHEET

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**NOTES:**

1. CONTRACTOR TO COORDINATE INSTALLATION OF PIPING, VALVES, AND MECHANICAL EQUIPMENT WITH FUEL TANK SUPPLIER. SEE SPECIFICATION 231323 - ABOVE GROUND FUEL STORAGE TANK.
2. CAP TANK PORTS NOT USED.
3. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INSTRUMENTATION.
4. TANK SUPPLIER SHALL PROVIDE ABOVE AND UNDER GROUND DOUBLE CONTAINMENT PIPE. DOUBLETRAC BY OMEGAFLEX OR APPROVED EQUAL.
5. CONTRACTOR SHALL COORDINATE FINAL FUEL PIPING LAYOUT BETWEEN DIESEL TANK AND GENERATOR UPON APPROVAL OF FINAL SUBMITTALS FOR THOSE EQUIPMENT.

**KEYNOTES:**

1. CONNECT PER MANUFACTURERS RECOMMENDATIONS.
2. ANCHOR PER MANUFACTURERS RECOMMENDATIONS.
3. LADDER PROVIDED BY FUEL TANK SUPPLIER.

DRAWING IS TO SCALE  
IF BAR MEASURES:  
1" = FULL SCALE  
1/2" = HALF SCALE

NO.	DATE	ORIGINAL		CHECKED	
		DESIGN	DRAWN	EIT	BMR
B	04/19/2024				
REVISIONS					
1	04/29/2024				

SOUTH DAVIS SEWER DISTRICT  
NORTH PLANT UPGRADE  
FUEL STATION  
MECHANICAL  
SECTIONS



533 W 2600 S, SUITE 275, BOUNTIFUL, UT 84010  
PHONE (801) 299-1327 FAX (801) 299-0153

DRAWING NO.

**06M402**

SHEET